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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/511,711	04/07/2005	Niklas Ahlborg	102672-103	6727

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EXAMINER	
GRUN, JAMES LESLIE	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/511,711	AHLBORG ET AL.	
	Examiner	Art Unit	
	James L. Grun	1641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 October 2006 and 09 July 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9,15-26,32-36,41 and 42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9,15-26,32-36,41 and 42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 09 July 2007, requesting entry of the response filed 16 October 2006, is acknowledged and has been entered. Claims 10-14, 27-31, and 37-40 have been cancelled. Claims 1-9, 15-26, 32-36, 41, and 42 remain in the case.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 18 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 18, "the B domain" lacks antecedent basis.

Claims 35 and 36 are rejected under 35 U.S.C. § 102(b) as being clearly anticipated by Hansson et al. (Immunotechnol. 4: 237, 1999) for reasons of record in the prior rejection of the similar subject matter of these claims.

Claims 35 and 36 are rejected under 35 U.S.C. § 102(b) as being clearly anticipated by Ljungqvist et al. (WO 00/63243) for reasons of record in the prior rejection of the similar subject matter of these claims.

Applicant's arguments filed 16 October 2006 and entered on 09 July 2007 have been fully considered but they are not deemed to be persuasive. Applicant urges that the references do not teach the purpose of the method as indirectly detecting the presence of the target molecule in a complex biological fluid sample. These are not found persuasive because a recitation of intended use is accorded patentable weight only to the extent that it limits the actual components of the kit; in the instant case the intended use does not affect the components in any way that distinguishes over the subject matter taught or suggested by the references.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
> (c) Subject matter developed by another person, which qualifies as prior art only under one or more subsections (e), (f) and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.
>
> This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103, the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 C.F.R. § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of potential 35 U.S.C. § 102(f) or (g) prior art under 35 U.S.C. § 103.

Claims 1-8, 15-26, 32-36, 41, and 42 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the combined teachings of Hansson et al. (Immunotechnol. 4: 237, 1999), Cozzette et al. (US 5,837,446), and Self (US 4,595,655).

Hansson et al. teach detection of binding to respiratory syncytial virus (RSV) G protein of a sandwich of anti-RSV monoclonal antibodies and an RSV G protein-binding affibody construct derived from a staphylococcal protein A Z domain/streptococcal protein G albumin binding domain fusion protein library. Either the antibody or affibody was immobilized on a sensor chip. The reference teaches that other suitable proteins used as scaffolds for combinatorial mutagenesis are available. In contrast to the invention as instantly claimed, the reference does not specifically exemplify a sandwich assay for detection of ligand in a biological fluid sample.

Cozzette et al. disclose sandwich assays for detection of a variety of analytes (cols. 47-50), including Respiratory Syncytial Virus, in biological fluid samples.

Self discloses sandwich assays for detection of a ligand using a non-antibody receptor which binds the ligand and an alternative mixed assay that also uses an antibody specific for the ligand. A non-antibody receptor may be natural or synthetic (see e.g. col. 3). One of the pair of ligand binding molecules is labeled with a detectable marker and the other of the pair of ligand binding molecules is bonded to a solid support (see e.g. cols. 13-17). The reagents can be supplied in a kit (see e.g. col. 17).

It would have been obvious to one of ordinary skill in the art at the time the instant invention was made to have used the affibody and antibody pairs taught in Hansson et al. in a sandwich assay for detection of respiratory syncytial virus because sandwich assays for detection

of this virus were well known in the art as taught by Cozzette et al. and Self teaches that it was notoriously old and well known that a non-antibody receptor which binds a ligand of interest would successfully substitute for antibody in a sandwich assay for the ligand.

Thus, the claimed invention as a whole was clearly prima facie obvious, especially in the absence of evidence to the contrary.

Claims 1-8, 15-26, 32-36, 41, and 42 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the combined teachings of Ljungqvist et al. (WO 00/63243) and Yu et al. (US 6,197,526).

Ljungqvist et al. teach detection of binding to human factor VIII of a sandwich of anti-factor VIII monoclonal antibodies and a human factor VIII-binding affibody construct derived from a staphylococcal protein A Z domain/streptococcal protein G albumin binding domain fusion protein library. The affibody was immobilized on a sensor chip. The reference teaches that other suitable proteins used as scaffolds for combinatorial mutagenesis are available. In contrast to the invention as instantly claimed, the reference does not specifically exemplify a sandwich assay for detection of ligand in a biological fluid sample.

Yu et al. disclose a sandwich assay for detection of human factor VIII is a solution such as blood or conditioned media using a non-antibody human factor VIII binding molecule and an antibody specific for human factor VIII (see cols. 8-12 and 14-15).

It would have been obvious to one of ordinary skill in the art at the time the instant invention was made to have used the affibody and antibody pairs taught in Ljungqvist et al. in a sandwich assay for human factor VIII in view of the direct suggestion in Yu et al. to detect

human factor VIII with a sandwich assay using a non-antibody human factor VIII binding molecule selected by phage display methods and an antibody specific for human factor VIII. One would have had an extremely reasonable expectation of success that selected pairs of binding molecules would perform their known and expected function of binding for capture or reporting in a detection assay, particularly in view of the sandwich assay for human factor VIII using an affibody and an antibody suggested in the teachings of Ljungqvist et al.

Thus, the claimed invention as a whole was clearly prima facie obvious, especially in the absence of evidence to the contrary.

Claims 1-9, 15-26, 32-36, 41, and 42 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the combined teachings of Lin et al. (US 2002/0037506), Borrebaeck et al. (US 2001/0053520), and Nygren et al. (Curr. Opin. Struct. Biol. 7: 463, 1997).

Lin et al. teach sandwich assays using aptamers as capture and/or reporter molecules for detection of target molecules in biological fluids, cell culture media, and industrial processes. In contrast to the invention as instantly claimed, the reference does not teach affibodies or other polypeptide non-antibody binding molecules.

Borrebaeck et al. teach the substitution of various anti-ligands in a binding assay. Anti-ligands can be antibody, antibody libraries, or provided from other molecular libraries on scaffolds other than antibody frameworks such as affibodies or aptamers (see e.g. [0024]).

Nygren et al. teach scaffolds and methods for engineering novel binding proteins to replace antibodies in various applications.

It would have been obvious to one of ordinary skill in the art at the time the instant invention was made to have performed sandwich assays with any available anti-ligand pairs, such as affibodies or other binding molecules on polypeptide scaffolds taught in Borrebaeck et al. or Nygren et al., because either of these references teach that engineered binding proteins could be substituted for antibodies or other binding molecules in various applications and sandwich assays performed entirely or partially with non-antibody engineered binding molecules were well known to the art as taught in Lin et al. One would have had an extremely reasonable expectation of success that selected pairs of binding molecules would perform their known and expected function of binding for capture and/or reporting in a detection assay.

Thus, the claimed invention as a whole was clearly prima facie obvious, especially in the absence of evidence to the contrary.

Applicant's arguments filed 16 October 2006 and entered on 09 July 2007 have been fully considered but they are not deemed to be persuasive in view of the NEW GROUNDS of rejection set forth hereinabove.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James L. Grun, Ph.D., whose telephone number is (571) 272-0821. The examiner can normally be reached on weekdays from 9 a.m. to 5 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le, SPE, can be contacted at (571) 272-0823.

The phone number for official facsimile transmitted communications to TC 1600, Group 1640, is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application, or requests to supply missing elements from Office communications, should be directed to the Group receptionist whose telephone number is (571) 272-1600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/JLG/
James L. Grun, Ph.D.
September 11, 2007

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